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ABSTRACT

Content-based ESL is a method that integrated English-as-a-second-language instruction with subject-matter instruction. The technique not only focuses on learning a second language, but on using that language as a medium to learn mathematics, science, social studies, and other academic subjects. Although this approach has been used for many years in adult, professional, and university education programs for foreign students, content-based ESL programs at the elementary and secondary school levels are just emerging. One of the reasons for the increasing interest among educators in developing content-based language instruction is the theory that language acquisition is based on input that is meaningful and understandable to the learner. Content-based ESL programs have been developed to provide students with an opportunity to develop their cognitive academic language proficiency, as well as to provide a less abrupt transition from the ESL classroom to an all-English-medium academic program. Content-based ESL courses provide instruction in the special language of the subject matter, while focusing attention as much or more on the subject matter itself. Examples of content-based instruction include: (1) mathematics, where communicating mathematical processes, concepts, and applications in English is emphasized; (2) science, where students learn to think, observe, classify, compare, communicate, measure, infer, predict, and identify space and time relationships in English; and (3) social studies, where students develop critical concepts in order to better understand the history and culture of the United States, as well as develop their cognitive skills. (TR)

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ESL Through Content-Area Instruction

ERIC DIGEST

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Washington, DC

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ERIC CLEARINGHOUSE ON LANGUAGES AND LINGUISTICS

ERIC Digest

ESL Through Content-Area Instruction

Prepared by Tarey Reilly

May 1988

This *Digest* is based on the ERIC/CLL *Language in Education* series monograph entitled *ESL Through Content-Area Instruction: Mathematics, Science, Social Studies*, JoAnn Crandall, editor. It is available from Prentice-Hall/Regents for $10.67. To order, write to: Book Distribution Center, Route 59 at Brook Hill Dr., West Nyack, NY 10994 or call: 1-800-223-1360.

ESL and Content-Area Instruction

Content-based ESL is a method that integrates English-as-a-second-language instruction with subject-matter instruction. The technique focuses not only on learning a second language, but on using that language as a medium to learn mathematics, science, social studies, or other academic subjects. Although this approach has been used for many years in adult, professional, and university education programs for foreign students, content-based ESL programs at the elementary and secondary school levels are just emerging. One of the reasons for the increasing interest among educators in developing content-based language instruction is the theory that language acquisition is based on input that is meaningful and understandable to the learner (Krashen, 1981, 1982). Parallels drawn between first and second language acquisition suggest that the kinds of input that children get from their caretakers should serve as a model for teachers in the input they provide to second language learners, regardless of age. Input must be comprehensible to the learner and be offered in such a way as to allow multiple opportunities to understand and use the language. If comprehensible input is provided and the student feels little anxiety, then acquisition will take place.

Krashen posits a dichotomy between acquisition and learning, with one (acquisition) serving to initiate all language and the other (learning) serving only as a monitor or editor, activated when the learner has time and is focusing on the correctness of his or her language. In another dichotomy, Cummins (1979, 1981) has hypothesized two different kinds of language proficiency: basic interpersonal communication skills (BICS), which are language skills used in interpersonal relations or in informal situations; and cognitive academic language proficiency (CALP), which is the kind of language proficiency required to make sense of and use academic language in less contextually rich (or more context-reduced) situations. Cummins suggests that BICS are relatively easy to acquire, taking only 1 to 2 years, but that CALP is much more difficult, taking 5 to 7 years and necessitating direct teaching of the language in the academic context.

Many content-based ESL programs have been developed to provide students with an opportunity to learn CALP, as well as to provide a less abrupt transition from the ESL classroom to an all-English-medium academic program. Content-based ESL courses—whether taught by the ESL teacher, the content-area teacher, or some combination—provide direct instruction in the special language of the subject matter, while focusing attention as much or more on the subject matter itself.

Mathematics and ESL

The language of mathematics has its own special vocabulary, syntax (sentence structure), semantic properties (truth conditions), and discourse (text) features. Math texts: (a) lack redundancy and paraphrase, (b) are conceptually packed, (c) are of high density, (d) require up-and-down and left-to-right eye movements, (e) require a slower reading rate than natural language texts, (f) require multiple readings, (g) use a variety of symbols such as charts and graphs, and (h) contain a large number of technical words with precise meanings (Bye, 1975). These language features, when combined with the mathematics content of the written text, require the students to apply mathematics concepts, procedures, and applications they have already learned.

The classroom environment in which ESL is taught through mathematics content should be carefully structured so that second language acquisition can occur. Instructional activities should promote second language development through a natural, subconscious process in which the focus is not on language per se, but on communicating the concepts, processes, and applications of mathematics. Instructional activities in both the ESL and mathematics classroom should be built on students' real-life experiences and prior knowledge of mathematics, and offer situations in which students can interact with the teacher and fellow students. Lessons that teach new concepts in mathematics should use graphics, manipulatives, and other hands-on, concrete materials that clarify and reinforce meanings in mathematics communicated through language. Studies have shown that limited-English-proficient students can acquire both mathematics and English simultaneously when they are involved in interactive activities (Wilson, DeAvila, & Intili, 1982; DeAvila & Duncan, 1984).

Science and ESL

Science is generally defined as a set of concepts and relationships developed through the processes of observation, identification, description, experimental investigation, and theoretical explanation of natural phenomena. Through scientific inquiry, students develop learning processes inherent in

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thinking: observing, classifying, comparing, communicating, measuring, inferring, predicting, and identifying space and time relationships. Current approaches to science and second language education based on research and classroom practice indicate a set of central notions for relating science and ESL. Science inquiry facilitates the development of ESL by providing the following:

- a "sociocognitive conflict" that spurs development of a new language system;
- a source of meaningful and relevant language input, using hands-on materials and texts with extralinguistic devices (diagrams, charts, pictures) to clarify meaning;
- positive affective conditions of high motivation and low anxiety;
- extensive opportunities for small-group interactions in which students negotiate meanings and receive comprehensible language input;
- opportunities for heterogeneous grouping with the role of peer tutor alternating among students, factors that contribute to input, interaction, and a positive, affective climate;
- experience with a wide range of language functions;
- extensive vocabulary development needed for school success;
- the integration of all modalities of language use: listening, speaking, reading, and writing;
- literacy-related tasks for development of cognitive/academic language proficiency; and
- the use of prior cultural and educational experiences for developing new concepts.

Science provides a rich context for genuine language use. From a language acquisition perspective, science can serve as a focal point around which oral language and literacy in ESL can develop. Specifically, science offers:

- interesting, relevant, and challenging content;
- opportunities for students to negotiate meanings;
- an abundance of appropriate language input;
- conditions for keeping students involved;
- materials for development of reading;
- activities for development of writing; and
- experiences with the forms and functions of English.

Social Studies and ESL

An ESL/social studies class should be concerned with more than just historical facts, geography, and terminology. It can promote the development of critical concepts of American history, thereby helping culturally different students to understand their new country, the United States, and its origins. Teachers can use language classes as a means of expanding social studies knowledge as well as use social studies content to enhance language development. Conventional instructional activities may be adapted by teachers not only to enhance LEP students' language development and knowledge of social studies, but to develop their cognitive skills as well. Strategies include:

- *Use of Manipulatives and Multimedia Materials.* Students need visual materials to understand time periods in history; for example, photographs and prints, realia, and filmstrips help students understand ways of life of the Americans living in the colonial period.
- *Language Experiences.* The teacher guides students' spontaneous speech by targeting specific vocabulary structures and concepts from the stories elicited from the students. For example, in an intermediate-level ESL social studies class studying the role of the Constitutional Convention in writing the U.S. Constitution, the concept of reaching compromises to make decisions may be an entirely new idea. The social studies teacher needs to determine whether the students can recall aspects from their own countries' governments that might be similar. If the students do not clearly understand the topic, then the teacher must create an experience that the students can draw from later. For example, the students could role-play various scenes from colonial times, when power was concentrated in the hands of a few. They could represent different interest groups, each arguing to have certain laws passed. With the teacher as facilitator, the students will come to understand that they must give up certain wants if any progress is to be achieved. Once the students have understood the concept of compromise, the teacher can proceed with the lesson on the Constitution and how its laws were created.
- *Semantic Webbing.* Students learn how to perceive relationships and integrate information and concepts within the context of a main idea or topic (Freedman & Reynolds, 1980). Following an oral discussion or reading, students construct web strands and supports by putting key words or phrases in boxes. Boxes are connected to illustrate relationships and subheadings under the main idea, greatly aiding comprehension. For example, the students draw boxes with the events that led to the American Revolutionary War.

Content-area teaching of English as a second language is not an end in itself but a means to an end. The strategies used for LEP students in social studies, mathematics, and science classes equip them with skills that will help them achieve success in the mainstream classroom.

References

Bye, M.P. (1975). *Reading in math and cognitive development.* Unpublished manuscript. (ERIC Document Reproduction Service No. ED 124 926)

Cummins, J. (1979). Linguistic interdependence and the educational development of bilingual children. *Review of Educational Research, 49,* 222-251.

Cummins, J. (1981). The role of primary language development in promoting educational success for language minority students. In *Schooling and language minority students: A theoretical framework.* Los Angeles: Evaluation, Dissemination, and Assessment Center.

DeAvila, E., & Duncan, S. (1984). *Finding out and descubrimiento: Teacher's guide.* San Rafael, CA: Linguametrics Group.

Freedman, G., & Reynolds, E. (1980). Enriching basal reader lessons with semantic webbing. *The Reading Teacher, 33,* 677-84.

Krashen, S. (1981). *Second language acquisition and second language learning.* Oxford: Pergamon Press.

Krashen, S. (1982). *Principles and practice in second language acquisition.* Oxford: Pergamon Press.

Wilson, B.E.A., DeAvila, E., & Intili, J.K. (1982, April). *Improving cognitive, linguistic, and academic skills in bilingual classrooms.* Paper presented at the annual meeting of the American Educational Research Association, New York.

About the Monograph

ESL Through Content Area Instruction: Mathematics, Science, Social Studies includes an introductory chapter on content-based ESL by volume editor, JoAnn Crandall, as well as the following three subject-specific chapters:

Mathematics—Theresa Corasaniti Dale, Gilberto J. Cuevas
Science—Carolyn Kessler, Mary Ellen Quinn
Social Studies—Melissa King, Barbara Fagan, Terry Bratt, Rod Baer.

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